

(19) World Intellectual Property
Organization
International Bureau



550 758

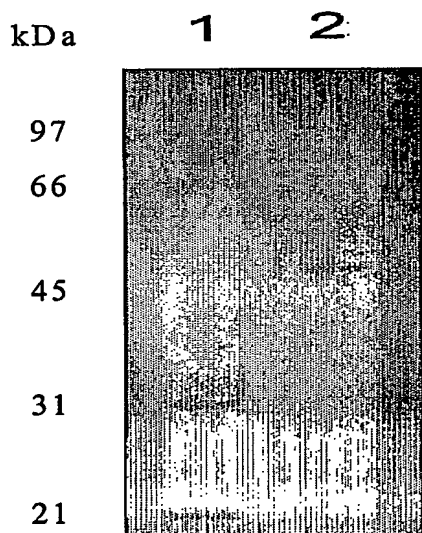
(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085638 A1

- (51) International Patent Classification⁷: C12N 9/14, #1-1-204 Kyungnam Marina Apt., Woo-dong, Haeundae-gu, Busan 612-020 (KR).
15/52, A23K 1/165
- (21) International Application Number: PCT/KR2004/000680
- (22) International Filing Date: 25 March 2004 (25.03.2004)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data: 10-2003-0018573 25 March 2003 (25.03.2003) KR
- (71) Applicant (for all designated States except US): REPUBLIC OF NATIONAL FISHERIES RESEARCH AND DEVELOPMENT INSTITUTE [KR/KR]; 408-1 Sirang-ri, Gijang-eup, Gijang-gun, Busan 619-902 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KIM, Young Ok [KR/KR]; 384-27(8/2), Jangjeon 1(il)-dong, Geumjeong-gu, Busan 609-838 (KR). KIM, Han Woo [KR/KR]; 220-10 26/3, Munhyeon 3(sam)-dong, Nam-gu, Busan 608-823 (KR). LEE, Jeong Ho [KR/KR]; #214-1503 Byucksan 2cha Apt., Jwa-dong, Haeundae-gu, Busan 612-766 (KR). KIM, Kyung Kil [KR/KR]; #101-1705 Kyungdong Apt., 304-1 Yeonsan 1(il)-dong, Yeonje-gu, Busan 611-811 (KR). LEE, Jong Yun [KR/KR]; #107-2002 Byucksan Apt., 1321, Jwa-dong, Haeundae-gu, Busan 612-840 (KR). KONG, In Soo [KR/KR];
- (74) Agent: LEE, Won-Hee; 8th Fl., Sung-ji Heights II, 642-16 Yoksam-dong, Kangnam-ku, Seoul 135-080 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PHYTASE PRODUCED FROM CITROBACTER BRAAKII



(57) Abstract: The present invention relates to novel phytase enzyme, a gene coding the enzyme, and a *Citrobacter* sp. producing the enzyme. Particularly, the present invention relates to the phytase enzyme produced from *Citrobacter* sp. having (a) molecular weight of 47 kDa, (b) optimal pH of 3.5-4.5, (c) optimal temperature of 45-55 °C, (d) as substrates phytate, p-nitrophenyl phosphate, tetrasodium pyrophosphate, ATP or ADP, (e) Michaelis constant of 0.3-0.5 mM utilizing phytate as substrate, and (f) high resistance to protease such as pepsin, trypsin, papain, elastase or pancreatin. The present invention also relates to the gene coding the phytase enzyme and the *Citrobacter braakii* producing the enzyme. The phytase enzyme and the *Citrobacter braakii* producing the enzyme of the present invention can be used in manufacturing a feed of monogastrics as feed additive and in recovering a specific decomposition product of phytate at low price.